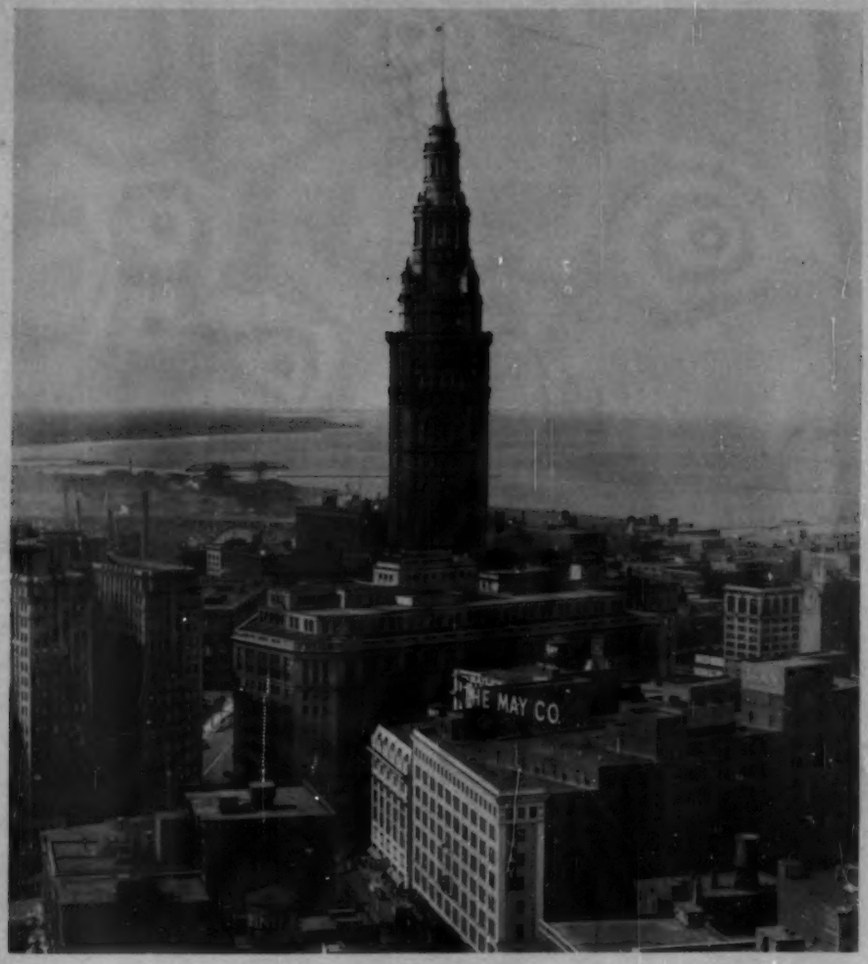
SPE JOURNAL

1950 CONVENTION CITY



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Published monthly except July and August by the Society of Plastics Engineers, Inc.

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Volume 5 **Number 8**

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Foreign Trade

(The following are excerpts from "Foreign Commerce Weekly" reprinted by permission of Commercial Intelligence Branch, U. S. Dept. of Commerce.)

AGENCY OPPORTUNITIES

Germany—Wassmann & Co. (cotton and textile importers, wholesale textile traders), Baumwollborse 58, Postfach 766, Bremen, is interested in obtaining agency from manufacturers of textiles and nylons.

Switzerland—M. Gasser & Co. (importing distributor), 90 Widnerstrasse, Zurich 38, desires agency for fine chemicals, machinery, and general merchandise.

Union of South Africa—C. De Solla Agencier (manufacturers' agent) 88 Fox Street, P. O. Box 5955, Johnnesburg, desires representation for packaging materials.

Further Imports from U. S. Authorized by Germany

Wear parts for various passenger motor cars of U. S. Production,$20,000,000

Resins (except wood resins B) $1,000,000.00.

Office Machines (adding machines, calculating machines, bookkeeping machines, spare parts for office machines), $800,000.00.

TRADE LISTS

The following trade lists are available for American concerns from the Commercial Intelligence Branch, Department of Commerce, Washington, D. C. for $1.00 per list.

Bag and Bagging Importers and Dealers—Honduras

Bag and Bagging Importers, Dealers and Manufacturers—Nicaragua

Bag and Bagging Importers, Dealers, and Manufacturers—Peru

Commercial Industrial Testing Laboratories—Egypt

Commercial Industrial Testing Laboratories—Indonesia

Electrical Supply and Equipment Importers and Dealers—Honduras

Paint and Varnish Importers and Dealers—Pakistan

COMMITTEEMEN FOR THE

SIXTH ANNUAL MEETING

AND

TECHNICAL CONFERENCE

TO BE HELD JANUARY 11, 12 AND 13 AT THE CARTER HOTEL, CLEVELAND, OHIO

T. E. ORR

R. L. HUBER

M. W. OSBORNE, JR.

G. E. FIELD

THOMAS E. ORR, Vice President of Plastics Engineering, Inc., and President of Plastray Corp., Cleveland, Ohio, is Honorary Chairman of the Sixth Annual National Technical Conference to be held in Cleveland at the Carter Hotel on January 11, 12 and 13th, 1950.

Mr. Orr holds a Bachelor of Science and Civil Engineering Degree from Carnegie Institute of Technology. He served in both World Wars, being a major in the Air Corps in the last one.

He became a member in 1943, while still in the service and became active in the National Organization in 1945 when he became National Meetings Committee Chairman. He was elected National Secretary in 1946 and National President in 1947. While National President, he organized fifteen new sections in the Society, among them the Mexico Section in Mexico City and the Quebec Section in Montreal. As a reward for his services while holding National Office, he was elected a Life Member in June 1948.

RICHARD L. HUBER, District Representative, Cellulose Products Dept., Hercules Powder Company, Cleveland, Ohio, is General Chairman of the Technical Conference.

Mr. Huber graduated from Lebanon Valley College in Pennsylvania and did graduate work in chemistry and mathematics at Pennsylvania State College.

He has been with the Hercules Powder Company since 1942 where he started in the Purchasing Department on the Ordnance Plant Construction. He moved to the Cellulose Products Department in 1943, becoming district representative in Detroit in 1944 and transferring to Cleveland in 1946.

Mr. Huber is active in civic organizations and a member of the Masons and Ancient Accepted Scottish Rite. He is president of the Cleveland Section of the Society.

M. W. OSBORNE, JR., Advertising and Sales Promotion, B. F. Goodrich Chemical Co., Cleveland, Ohio, is Assistant General Chairman of the Conference.

He graduated from Illinois College in 1943 with a degree in chemistry. He served three years with the Navy in electronics, working on radar blind landing equipment part of the time.

He received his masters degree from Harvard Graduate School of Business Administration in September 1947, where he had spent much time studying the plastics industry.

Mr. Osborne is Secretary of the Cleveland Section.

G. E. FIELD, Technical Manager, Plastic Materials, B. F. Goodrich Chemical Co., Cleveland, Ohio, is Speakers Chairman for the Technical Conference.

Mr. Field graduated from Case Institute of Technology in 1931. He has been associated with the rubber and plastics industry since 1941. He started out as Plant Manager of the Synthetic Rubber Plant in Louisville, Kentucky, which was operated by B. F. Goodrich for the account of the Rubber Reserve. Later he became Technical Manager and Coordinator of all plants operated by B. F. Goodrich for the Rubber Reserve.

Mr. Field is still very active in the Rubber Reserve, serving on the Operating Committee, Sub-committee on Tests and Inspection and Sub-committee on Process improvements.

WILLIAM J. MISKELLA, owner of Miskella Infra Red Company, Cleveland, Ohio is Hotel and Banquet Chairman for the Technical Conference.

He is a graduate of Cornell University in Mechanical and Elctrical Engineering. He owned and operated several baked metal job enameling shops in Chicago for thirteen years. He is inventor and manufacturer of several kinds of stationary and portable preheaters and dryers of plastic powders.

Mr. Miskella is the author of several books, among them Infra-Red in Industry.

WARD T. VAN ORMAN, Goodyear Research, Akron, Ohio is Publicity Chairman.

He received his B.S. in M.E. from Case School of Applied Science in 1917, his M.E. in 1923. In 1935 he was given the first Citation of Honor by Case for his outstanding achieve-

(Please turn to page 8)

THE ELECTROSOL PROCESS

FOR THE CONTROL OF STATIC ELECTRICITY

By MERRILL J. AINSWORTH

Mr. Merrill J. Ainsworth has had past association with, or has been engaged by, Aircraft Industries Corp., Glendale, Calif.; Douglas Aircraft Co. facilities at Santa Monica, El Segundo, and Long Beach, Calif.; Texas A. & M. College; U. S. Naval Air Station, San Diego, and Bendix Corporation Research, N. Hollywood, Calif.

He has been an active engineering consultant on industrial electrostatic problems since 1945. He holds Federal Communications First Class Commercial License validated for broadcasting, communications, facsimile, and television. He is a certified Professional Electrical Engineer of the State of California.

Static electricity was first discovered by Thales of Miletus in 600 B.C. Fortunately, it did not cause serious trouble in the plastics industry for some time thereafter. While current electricity was not discovered until 1780, it is interesting to note how much we have learned about it since that time compared to how little we have learned about the static variety in over twenty two hundred years since its discovery.

Until recently there had been little knowledge of the exact nature of this fundamental phenomenon. Further, there had been little effort directed at the problem and little pure or applied research expended toward its solution.

Static electricity has for years created serious difficulties in the plastics, textile, and paper industries. It engenders many less serious problems of the annoyance class in a wide range of fields, trades, and activities. Any place where non-metallic materials must be handled in quantity or with speed and where electrical non-conductors are used is fair game for static electricity.

The range of electrical voltages experienced from this cause is something of interest and is seldom appreciated. Voltage measurements taken by the spark gap method have been found to range from 5000 to 100,000 volts! In paper processing and printing machinery these charges have become of such magnitude as to set the paper being processed on fire. Needless to say, equipment and material bearing such electrostatic potentials is neither comfortable nor safe to work about. On conveyor systems and drive belts, voltages of the order of fifty thousand volts have been measured with regularity. Such conditions present problems in the manufacture of textiles, ginning of cotton, mixing of pigments and paints, manufacture of oilcloth and rubber goods. Rubber spreading machinery, spot-proofing machinery, naphtha cleaning machines, and fluid and gas transport equipment all present peculiar problems with respect to static electricity.

MERRILL J. AINSWORTH

However, it is in the plastics industry where this manufacturing demon most frequently rears its ugly head. Problems involving static electricity and plastics generally may be considered in four categories:

1. Problems of handling and fabricating plastic materials. Static electricity adds immeasurably to difficulties of many operations in the formulating, processing, and fabricating of these materials. Time is lost and costs mount when materials are stubborn to handle; sheet stock sticks together or wanders crazily in search of oppositely charged material. Work flow is hindered by adhesion of material in process to other material or foreign matter. Material and equipment are uncomfortable to work with and production suffers. Quality is hampered by improper forming, molding, or processing attributable to this cause.

2. Problems affecting mechanical performance of the plastic article being manufactured. This difficulty occurs where plastic housings are used for mechanical or electrical equipment, or as moving parts of mechanical assemblies. It may, for example, cause erroneous performances or prevent operation of a low torque meter movement where such a movement is housed in a plastic case or covered by a plastic lens. Light weight plastic mechanical assemblies relying on low mechanical forces for operation may be effectively stopped by an electrostatic charge.

3. Problems of appearance of the material or manufactured article. All pieces or particles of material of all kinds are always at some electrical potential. Where ever a difference exists in the potential of two pieces, they are attracted to each other with a force similar to that of a magnet and a tack. Thus, when a plastic article or plastic material acquires a static charge, it is at a substantially different potential than all of the dust, dirt, lint, and particles of foreign matter in the air and in the immediate vicinity. The part or material hence attracts such particles to it and becomes unsightly and loses its attractive appearance. Attempts to wipe the surface clean usually result in increasing the static charge and adding lint from the wiping cloth, with generally unsatisfactory results. Continued wipings, as of a display case or rack, only serves to destroy the natural lustre and beauty of the original plastic.

4. The problem of hazard to material, facilities, and personnel. Plastic fabrication techniques customarily employ solvents, thinners, cements, and paints which are volatile or inflammable in nature. A voltage of 50,000 volts will produce a spark about three quarters of an inch in length, ample to

create a serious fire and explosion hazard, even under normal conditions.

As with any problem of research, to provide a positive and properly engineered solution the fundamental underlying segments of the problem must be discovered, established, identified and analyzed. Only with a true and complete understanding of the fundamental phenomena involved can a proper approach be made to a worth while solution. It was with a full realization of these truths and a complete awarness of the general lack of knowledge of fundamental data that our earlier research was directed.

In seeking to prevent the formation of static electricity it is necessary to consider what happens within a material when it becomes statically charged. All matter is composed of molecules which are in turn comprised of atoms of the fundamental elements. The atomic structure of matter varies in arrangement of its protons, neutrons, and electrons in many ways. Each molecule constituting a piece of matter possesses a resultant electrical charge, some portions being positive and others negative in polarity. In uncharged matter, a piece of plastic for example, these molecules are arranged in purely random fashion. Hence, their individual electrical charges have no additive effect. The effect of a positive charge on one molecule may be cancelled by the positive charge of its neighbor facing the opposite direction. However, when charges on the molecules are oriented in one direction, as is done by mechanical friction or by contact with a charged source, these charges all add together as in a series hook-up arrangement in a battery. The result is that with each molecule contributing its share, the total electrical charge over an area of the material can be tremendous.

In plastic materials we find the ideal combination of the factors necessary for accumulation of such a static charge. The materials are fundamentally electrical insulators, in fact are among the best insulators known. Electrical loss factors are low. The very things which account for their demand in electrical applications are those which cause the trouble with static electricity. Understanding what happens within the material we can now appreciate that a static charge can occur over a small localized area of a plastic body. Likewise, many charges of different polarities and magnitudes may occur over different areas of the same body—in fact over any area larger than a molecule of the material itself. We can also understand why conventional antistatic waxes, solutions, and mechanical methods are unable to prevent orientation of the molecular lattice structure of a plastic material in this fashion.

The mechanical friction necessary to establish an electrostatic charge is very slight. Normal removal of a molded article from the steel mold cavity is ample. Handling in removal of material or parts from shipping cases or production stowage racks is adequate. Transfer from one's charged body to plastic occurs readily and instantaneously. A power driven conveyor belt will readily create a high charge and transfer it to plastic parts or assemblies it carries. A worker charges a part or material merely by contact if he has a charge on his person.

To be completely effective in elimination or control of static electricity in plastics, the means employed must:

1. Prevent the accumulation of an electrostatic charge on the parts or materials involved.
2. Be relatively permanent in its effect. Treatments lasting from a few minutes to a few days are of little value in articles manufactured for later sale.
3. Be impervious to varying conditions of temperature and humidity.
4. Be unaffected by normal handling and other processing which may be required.
5. Be of such a nature that it does not damage appearance of the article or material processed. It should have or incur no undesirable appearance factor itself.
6. Be so composed as to be inert in its effect on normal paints, lacquers, and enamels since it is often desirable to use these materials in conjunction with plastics.
7. Be of such a nature as to remain inert in effect on all of the common plastic materials. It should engender no chemical, electrical, or mechanical detrimental action on the material, either in processing or thereafter.
8. Be of such low cost as to permit its ready use in applications involving large quantities of materials and low cost production.
9. Be a process or treatment that does not add hazards or difficulties of its own.

These are truly stringent requirements and appear to be demanding of the ultimate in an antistatic process.

However, such a process has emerged from the laboratory, been subjected to exhaustive tests and evaluation, and is finding ready applications in the plastics industry. It will be commercially identified as the Electrosol process.

Let us see how this process accomplishes its function. From an understanding of what happens in a plastic when it becomes charged, it is apparent that to be effective the process must prevent orientation of the molecular lattice structure of the material. This is done by the Electrosol process in a unique and unusual manner using an entirely new and different approach. The process as applied to a typical problem in the plastics fabrication field, consists of a two stage dip or spray application of two successive formulations. The first material (Electrosol #1) is a burgundy colored transluscent fluid consisting essentially of four classes of material:

1. An electrical insulator of uniform characteristics to insulate the processed material or part from the material to follow (Electrosol #2).
2. A dispersing and wetting agent for this and the second material.
3. A catalyst for the complete process reaction.
4. A vehicle to provide uniform deposit, control viscosity and permit uniform pull-out in dip usuage.

After a dip or spray application of this material to the plastic being processed and a twelve minute air dry at normal room temperature, the

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THE MISKELLA Infra-Red COMPANY

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plastic is given an application of Electrosol #2. Fourteen minutes later at room temperature the process is complete. Electrosol #2 is a clear, low vicosity fluid with a slightly bluish cast. The result of the second application is an unchanged original material, the surface of which can not be electrostatically oriented and which prevents orientation of the material it covers. Hence, no static charge can exist.

The total Electrosol deposit on the parts or material processed averages 0.00035 inches in thickness as measured on the Do-All Electronic Comparator and the Pratt and Whitney Super Micrometer.

This explains the extremely low cost of the process as material pull-out on dip application is low.

Original appearance of the processed part or material is unhampered. Surface finish is unaffected and transparency is good. No discoloration of the material occurs and all color in the processing materials themselves is dissipated in the process reaction. On some materials, particularly the acrylics, a slight residue by-product of the process reaction remains on the surface of the material. Where absolute transparency is required, as in lens applications, or where this residue is undesirable for any reason, it may be readily removed by wiping. In production applications where this is deemed necessary the operation is usually accomplished by power operated fleece buffers or belts.

There is no chemical reaction between the process materials employed and any of the acrylates, methacrylates, cellulose acetates and nitrates, phenols, styrenes, vinyls and resins in common use.

Normal temperature and humidities have no detrimental effect either on the results of the process or on the material processed. Surface hardness, abrasion, and scratch characteristics of plastic materials given the Electrosol process are frequently improved.

The entire process, including all materials used, has no effect on any of the paints, enamels, or lacquers commonly used in connection with plastics.

Electrosol materials are non-volatile, non-explosive, and non-inflammable. Other than a slight toxic effect of Electrosol #2 on the skin through prolonged direct contact, the industrial hazard is non-existent. Process operators normally wear rubber or neoprene gloves when handling Electrosol materials.

A typical production application of the process involved a piece of electrical equipment so designed that a cylinder of 0.010″ thick cellulose acetate sheet was required to revolve from low torque within a second cylinder of the same material. Static accumulation was such that the device was rendered inoperative merely by handling in removal from shipping containers. Casual bodily contact with the device by the operator would also charge one of the cylinders and cause retardation and stoppage. Rapid movement of air past the stationary outer cylinder would create the same result. Many conventional materials, techniques, and methods had been investigated without success. Either the static elimination effect was not permanent, the appearance was detrimentally affected, or normal handling would destroy the treatment given the device.

The Electrosol process accomplishes the desired results in this application and at a cost which is but a small fraction of the cost of systems previously used. Processing is accomplished in this case by conventional dip techniques. The cylinders are placed in inexpensive wire racks by the operator upon completion of the preceding cementing operation. Full racks are quickly dipped in the first tank containing Electrosol #1 and immediately removed. Drippings return to the dip tank. Twelve minutes later the same racks are dipped in the second tank containing Electrosol #2 and removed. Fourteen minutes thereafter the process is complete. The acetate cylinders are removed from the racks by the operator who performs the following manufacturing operation upon them. The sequence of manufacturing operations which follow on these cylinders leaves them unimpaired in appearance either by processing or handling. They are static free.

The dip tanks employed in this application are inexpensive enamel coated steel. Since Electrosol materials are inert to enamels, more elaborate or costly tanks are not required. Tanks are set into the top of the processing bench flush with its surface to provide a convenient height for the operator. Tanks are kept covered when not in use to prevent introduction of foreign matter. They are of twenty gallon capacity for a processing rate of 1500 cylinders (750 complete units) per day. By keeping the tank size and the material in the tanks no greater than necessary, it is possible for material pull-out and replacement to occur at a rate which eliminates excessive accumulation of dirt and foreign material in the tanks. Frequent cleaning of tanks or filtration of processing materials is thus avoided. Total processing costs, including amortization of all licensing and equipment costs over 50,000 units, is slightly under one and one third cents per unit.

Another interesting application of the process involved a vinyl tubular sheath for an electrical cable connecting two pieces of electronic equipment. This sheath is cylindrical in cross section with a diameter of three quarters of an inch and 0.15″ wall thickness. The sheath was accumulating and supporting an electrostatic charge which was proving detrimental to the transient and signal voltages being transmitted by the cable. Corrective means other than one which was positive and permanent were valueless since the function was one of instrumentation. Electrosol processing of the vinyl sheath proved completely effective and was accomplished at a cost of approximately three tenths of a cent per foot.

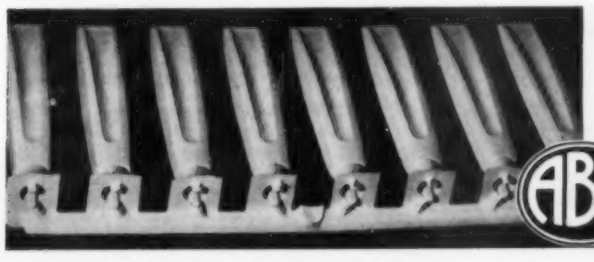
Phonograph records processed with Electrosol after pressing, no longer accumulate dust and lint as the result of a static charge generated by needle friction. This not only retains improved appearance but substantially reduces record wear and increases usable life by reducing abrasion from these sources. The record surface tends to be self-lubricating and

(Please turn to page 6)

Rogers Plastic Corporation Offers Manufacturers' Molding Service and Ideal Distribution Arrangement

The management has been in the plastics industry since its pioneer days.

Rogers Plastic Corporation
West Warren, Mass.



Intricate Molds? The mold for the brush handles shown at the left *(courtesy Fuller Brush Company)* required not only intricate design, but ultra-smooth finish to meet today's mass production needs. Our sound engineering experience and modern equipment and methods are the answer. *WRITE FOR LITERATURE.*

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surface noise is reduced. Work was done on this application by both automatic spray and dip techniques with results favoring the dip process. An installation similar to that described earlier for treatment of the acetate cylinders was employed. A slight modification of the Electrosol #1 material was performed to permit thorough dispersion within the record groove without affecting dimension and resultant tonal fidelity. Cost of the process in this application is $0.00372, $0.00743, and $0.01068 per unit for the seven, ten, and twelve inch discs respectively.

Problems in both fabrication and appearance in the field of packaging merchandise in plastics are solved simultaneously by processing of the raw material.

Other interesting applications have suggested themselves for investigation and use. A raincoat of the vinyl film variety lost its objectionable tendency to stick and cling to the person and clothing of the wearer when the coat was Electrosol processed. Transparent plastic models of operating machinery, selling aids, and plastic inspection ports in regular machinery are quickly obscured due to lint and foreign material accumulated thereon. This is primarily occasioned by the static charge on them from the rotating equipment within. Such difficulities are readily cured with the process.

Our experience indicates that processing of the conventional styrenes and laminates has little effect on their dielectric properties. The dielectric constant, and also the power factor at frequencies up to 100 megacycles, remain relatively unchanged.

The process is designed primarily as a dip or spray application for finished parts or for finished materials prior to fabrication. However, some work has been done with incorporation of compound dehydrates of the Electrosol #1 and Electrosol #2 materials in plastic formulations prior to their reaching the molded or extruded form. This work has shown promising results. The dehydrates are incorporated either in the dry form or as hot melts. Electrosol #1 compound dehydrate melts readily at 96° Centigrade (about 205° Fahrenheit) and #2 liquefies quickly at 70° Centigrade or 158 degrees F.

Generally speaking, the process appears to represent a substantial contribution to electrostatic control. On the other hand, it is a process which must be properly used and maintained to secure optimum results. For this reason, materials for its use will not be sold on the open market. Rather, qualified users will be licensed so that processing applications may be kept subject to technical supervision and quality control. Licensing arrangements are designed to present no cost barrier to use of the process.

U. M. CALENDAR

By E. W. ULRICH

The **UPPER MIDWEST SECTION** met October 10th at the St. Paul Athletic Club. Speakers were Wilbur M. Bennett, member of the Minnesota Mining and Manufacturing Co. Public Relations department, and J. H. Kugler, on the early technical developments at 3 M. A plant visit at 3 M followed at 8:30.

Future meetings will continue on the second Monday of every month at the University of Minnesota in the Coffman Memorial Union. The calendar of coming events includes:

November 14: Harry Dubois, National Director of SPE and vice-president of Shaw Insulator will speak on Transfer Molding and on the organization of the national SPE.

December 12: William Wall of du Pont on Nylon.

January 9: A speaker from Hercules Powder; details to be arranged by J. H. Kugler.

February 13. Sanford-Glick from Monsanto on the subject Polystyrene —an Engineering Material.

March 13: A speaker from Pyroxylin Products, Inc. Details to be arranged by Paul Felt.

April 10: Frank Donahue from Monsanto on the subject Trouble Shooting—Thermosetting Molding.

The board of directors of the section have decided to give an award plaque rather than a cash prize to the local winner of the 1949 Prize Paper Contest.

STYRENE EXTRUSION

By PETER W. SIMMONS

The Newark Section of the Society of Plastics Engineers held their first dinner meeting of the fall season on Wednesday, Sept. 14th, at the Military Park Hotel, Newark, N. J. Approximately 100 members and guests were present.

After a short business meeting, Mr. Al Look of the Dow Chemical Co., gave a well received talk on polystyrene extrusion. The point was stressed that there was no such thing as a general-purpose extruder, and that best results could be obtained by specifying a machine which was best suited for a particular application. Dies should be engineered to suit the operating conditions of one machine, and from that time on regarded as a part of that machine.

It was felt that the best type of heat for extruders was furnished by high-pressure steam, with oil and electrically heated units satisfactory if sufficient means were provided to dissipate frictional heat. Inasmuch as frictional heat could be developed at any location in the cylinder barrel zone cooling was a definite requirement in all cases.

A compressing-type screw and torpedo assembly was recommended for polystyrene extrusion. The most effective length of screw flight was found to be 32" plus a 12" long torpedo section.

In conclusion, some mention was made of applications such as refrigerator breaker strips and lighting strips. Many functional uses in the electrical field are being developed, due to the favorable properties of polystyrene for these applications.

N. W. PA. OUTING

By PAUL ROCHE

September 1 was an easy date for busy engineers to remember so that particular Thursday was selected for the annual outing on the Section Treasury (it's a joy just to think about something for free anymore). "Tiemann's" on Wyoming Ave., in Erie was selected and the prowess of the individual was measured competitively with divot and horseshoe. To say nothing of the food and beverage department, which operated on an overtime basis both early and late. For door prizes the boys had to get along with one 17 jewel watch 1 double barrelled shot gun, 1 automatic rifle, one rod and reel, 1 camera with flashbulb attachment, two large carpenter planes, one electric clock with timer, two gift certificates for hats, etc. etc. We should like to acknowledge credit for the generosity of these donations but, since we want to build a fence around these benefactors and brand them as our own, it is not our aim to draw attention of the other sections. Anyway the affair was 100% successful and the secret to attracting peak attendance has been noted.

Jerry Stokes, President of Perry Plastics, Inc., and Vice President of Northwestern Pennsylvania Section, has taken a couple of weeks off for eye treatment (last two weeks of September) at Hanot Hospital. At latest report he was responding favorably to treatment and recuperating progressively. Our best wishes for early relief go to Jerry from all members of the section.

The **NORTHWESTERN PENNSYLVANIA SECTION** heard attorney Florian G. Miller speak on "Patents, Trademarks, Copyrights and Licensing Arrangements," at their October 13th meeting. Mr. Miller graduated from University of Michigan in mechanical engineering, from George Washington University in law, and took a master of patent law degree at Washington College of Law. He was in the patent department of Westinghouse Electric and while in the Army served in the Patent Section of the Army Ordnance Department.

N. Y. BUSINESS SESSION

By A. M. MERRILL

The first meeting of the current season of the New York Section took place on September 21 at the Hotel Shelburne, with approximately 37 members and guests attending. Instead of the customary technical speakers, the meeting took the form of a business or "gripe" session at which achievements during the year to date were evaluated and plans formulated for further improving the activities of the Section.

The business session followed an after-dinner showing of the SPI sound-color film, "A Scientific Approach to Better Plastics," illustrating the basic work in plastics research being performed at Massachusetts Institute of Technology. The session began with reports from secretary-treasurer George Baron, Ideal Plastics Co.; house committee chairman Bruno Wessinger, Wess Plastic Molds, Inc.; and program committee chairman G. Palmer Humphrey, G. P. Humphrey Plastics. Section president Stanley Bindman, Noma Electric Corp., announced that the 1951 SPE National Conference will be held in New York City, and will be sponsored by the Newark and New York Sections.

Some of the problems discussed in the open meeting were the establishment of a committee of experts to answer members' questions on practical difficulties encountered with machinery, molds, and materials; the establishment of a Section employment clearing house for members; more active group participation in the planning and selection of future technical programs; methods of increasing membership in the Section; and plans for the forthcoming Christmas party. The discussion of each subject was long and active, and the results obtained will be acted upon at the next meeting of the Section's directors.

The meeting concluded with a drawing for a door prize contributed by the Section. Novelty plastic table favors were distributed to all through the courtesy of Mr. Humphrey.

The New York Section were hosts to the Newark Section at a joint dinner meeting on October 19 at the Hotel Shelburne. Speaker of the evening was Grant W. Cheney, Dow Chemical Co., who discussed "Injection Molding Design of Polystyrene."

BARNETT AT S. CAL.

By JOHN DELMONTE

Mr. Louis H. Barnett, president of Loma Plastics, Inc., addressed the Southern California Section of SPE-SPI on Thursday, September 29th, at the Officers Club, in Los Angeles.

Mr. Barnett exhibited motion pictures describing the construction and design of the high capacity injection molding machines he has in operation at his plant in Fort Worth, Texas. In describing the machine considerable emphasis was placed upon the importance of the pre-plasticizing chamber, and it was pointed out that with the aid of this unit it was possible to continue injection molding operations at usually one-half the pressure required in a standard design machine.

Mr. Barnett also emphasized the importance of maintaining accurate temperature control of the molds. Considerable discussion was devoted to the value of pin-point gating in certain designs though the speaker did not feel this was a panacea for all injection mold design problems.

For example, he expressed the opinion that in articles with thick and thin sections the tendency towards shrink marks was quite pronounced.

Displayed at the meeting was a new 43-oz. transparent polystyrene dome to be used as an oil filter. This, together with large size pans for refrigerators and numerous other articles underscored the excellent quality of the work being done at Mr. Barnett's plant.

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MBS CASTING RESINS DISCUSSED AT PHILLY

By H. S. STEVENSON

Thirty-one members and guests attended the Philadelphia September 20th Meeting and heard Mr. P. J. Franklin, Physicist in the Ordnance Mechanics Section, National Bureau of Standards, discuss his development work on MBS casting resins. All were very interested in the long exhausting research that had been done on all the available resins to be used in filling electronic tubes. Initially, the time required for curing such resins extended to four days and by several years work this has been reduced to a period of twenty minutes, and in addition characteristics of the resins have materially improved.

Everyone was quite interested in the statement that it was now possible to fill such tubes by injecting polystyrene at extremely low pressures without destroying the tubes and the equipment assembled therein. However, any description of this new process was prohibited due to the project being classified. Mr. P. J. Franklin very generously offered to supply us with the first news release on this entire problem which was expected to be available in about six months time.

ISLYN THOMAS, a National Councilman, left this country by plane on Wednesday, Sept. 14th. He is planning to touch England, France Germany, Switzerland and Italy on a two week trip which will culminate at the Plastics Show in Italy. Mr. Thomas was accompanied by his wife, who will doubtless be hard pressed to keep up with him.

GERARD C. HELDRICH has taken over and is in complete charge of the Extruded Plastics Division, Gering Products, Inc., manufacturing and developing Polyethylene film and tubing in a standard range of thickness and widths, as well as any other thermoplastics in special and standard shapes.

WARD T. VAN ORMAN

CARL E. HOLMES, owner and general manager of American Plastic Engineering Corp. in Detroit has been appointed manager of manufacturing of the Plastics Division of the General American Transportation Corp. in Chicago, Ill.

COMMITTEEMEN

(from page 2)

ments in ballooning and meterology.

Mr. Van Orman was an active balloonist for many years, holding eight first prize awards. He has been affiliated with Goodyear Tire and Rubber since 1918, and he has been in the Goodyear Research Laboratory since 1942 carrying on studies in plastics. He has many inventions, one of the later ones being the stratosphere pressure suit developed in 1942.

CLAYTON W. WATERFIELD, Bird Electrical Corp., Cleveland, Ohio, is Registration Committee Chairman for the Technical Conference.

Mr. Waterfield is a production director specializing in small, intricate, close dimensional parts for accoustical and magnetic recording parts. Many of the parts weigh as little as one hundred pieces to the ounce. The parts and their molds have to be designed and the machines re-worked to suit the molding conditions.

He is Vice-President of the Cleveland Section.

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DETROIT HEARS WARREN SHARPE

By WALTER KOSY
Chemical Engineer
Lyon Incorporated

The September meeting of the Detroit Section was held on Sept. 22 at Adrian Cotter's in Berkley, Michigan. The speaker of the evening was Mr. Warren Sharpe of the Bay Manufacturing Division of Electric Auto-Lite Company. Mr. Sharpe's talk on the reclaiming of scrap material in a molding shop was both timely and interesting. Basing his figures on actual experience at Bay Manufacturing, he estimated that in the last 105 molding jobs that were run there, about 22% of the molding powder used went into the sprues and runners and had to be reclaimed. Adding to this the additional rejected pieces resulting from damage and mutilation in operations subsequent to molding, such as buffing, decorating, etc., he pointed out that there was a considerable percentage of the molding powder that had to be reclaimed. In the case of some decorated articles, rejects up to 10% of production were not uncommon making it necessary for the molders to re-process fully one third of his original plastic molding powder.

Some of the scrap can be fed directly back into the injection machine hopper providing that it is clean, in small pieces, and still warm. After the sprues, runners, etc., have cooled, putting them back in the hopper may cause trouble and the material should be re-granulated.

Granulation is an important operation. The grinder should be frequently checked to make sure it is in good shape and the scrap to be reground should be free of oil, floor dirt, mold lubricants, etc. The blades and the speed of the rotary cutters in the grinder should be adjusted to give a minimum of fines, which tend to cause streaks and striations in the molded pieces, especially in clear acrylics, etc., where good optical properties are desired. In general, cutting down the speed of the rotary cutting hammers will reduce the amount of fines but this also cuts down the output of the grinder. Warming the plastic prior to grinding will also help to reduce the fines.

Screening of the reground material will, of course, remove the greatest part of the fines. Such an operation is advantageous because it produces a material which will give a more uniform feed in the hopper and which can be molded on a shorter cycle.

Mr. Sharpe stated that upon remolding, styrene and the acrylics retain essentially their original flow characteristics, but that the cellulosics tend to harden up to a harder flow material. There was some difference of opinion as to the extent of this hardening up.

The recovery of painted and plated rejects presents problems, some of which remain unsolved. There does not seem to be a satisfactory method for removing paint from thermoplastic materials. Generally, these parts are simply thrown away. Some pieces may be saved by mechanically scraping and sanding and then repainting, but the costs of such an operation must be carefully watched. Salvaging of plated parts can generally be done by suitable chemical stripping solutions.

The number of questions asked and the discussion resulting at the end of Mr. Sharpe's talk testified as to the interest in this subject.

The next meeting of the Detroit Section will be held on Nov. 8. Dinner will be served at 6:30 at the Hotel Wardell-Sheraton and at 8 p.m. the section will hear Mr. W. J. Connelly of the Bakelite Corp. Mr. Connelly will present a film entitled, "The Nature of Plastics," which is reputed to be one of the best presentations of the fundamentals of plastic technology.

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TORONTO FORMS NEW S.P.E. SECTION

On September 12th Mr. Wilfred Lynch, President of the Quebec Section, met with the men interested in forming a section in Toronto, Ontario. The group selected the following temporary officers and committeemen:

General Chairman: R. E. Reichardt, Smith & Stone, Georgetown, Ontario.

Secretary: J. N. Kempf, Duplate Canada Ltd., Oshawa, Ontario.

Membership: G. W. Mitchell, B. F. Goodrich Chemical Co., Toronto, Ontario.

Program: F. W. McEwen, Duplate Canada Ltd., Oshawa, Ontario.

House: J. F. Schneider, Reliable Plastics, Toronto, Ontario.

There are about twenty five plastics technical personnel interested in the formation of the section.

Section Notes

The **WESTERN NEW ENGLAND SECTION** heard Mr. James Wilson, Manager of Plastic Machinery Sales of Watson-Stillman Company speak on "Pin Point Gating in Injection Molding" on October 5th at the Sheraton Hotel in Springfield, Mass.

"Color in Plastics" was presented October 6th before the **EASTERN NEW ENGLAND SECTION** by Mr. Benjamin J. Mayo, Jr., New England District Sales Manager for the Pigment Color Division of the Imperial Paper and Color Corporation. Mr. Mayo has had many years experience with color pigments as used in plastics, having been associated with the Boston Varnish Company and the Devoe and Reynolds Paint Company.

The first meeting of the **RHODE ISLAND AND SOUTHEASTERN MASSACHUSETTS SECTION** on September 15 was a general business meeting. An extensive membership campaign was outlined. Mr. H. Boyden was appointed chairman of the Credentials Committee with Mr. A. H. Angell and Mr. J. Stenberg as assistants. A prize is being offered for the most members obtained. Mr. M. Suba is chairman of the Membership Committee with C. J. Cowan, F. Murphy, A. Oakes and R. Riley in charge of their respective districts.

The **CLEVELAND SECTION** met at the Cleveland Engineering Society headquarters on September 30 to hear Mr. George Fowles, Sales Manager, Plastics Material, B. F. Goodrich Chemical Co. speak on "Plastics Possibilities."

The **ROCHESTER SECTION** heard Mr. Ed Borro, Director of Technical Sales Service of Durez Plastic and Chemical Co. speak on "Low Pressure Molding" at the Rupert Grey Restaurant on September 20. Mr. Borro has had a great deal of experience with materials and methods in low pressure molding and his talk described the advantages of this technique, particularly as regards the molding of large pieces and the use of inexpensive molds.

"Reclaiming Scrap Materials" was Warren Sharpe's subject when he spoke before the **DETROIT SECTION** on September 22nd. Mr. Sharpe is with the Bay Manufacturing Division, Electric Auto-Lite Co.

Gering Products, Inc. announces the appointment of the **C. H. WHITLOCK ASSOCIATES**, 1601 Fisher Building, Detroit 2, Michigan, as their sales representative in the states of Michigan, Ohio and Indiana.

The **BUFFALO SECTION** toured the E. I. duPont de Nemours & Co. plant at Tonawanda on September 28th. They saw the Rayon, Cellophane and "Cel-O-Seal" Departments. A buffet supper followed at the Park Manor in North Tonawanda.

The **SOUTH TEXAS SECTION** heard L. H. Barnett, President of Loma Plastics, Fort Worth, Texas, speak on "A New Approach to the Injection Molding of Large Pieces" at their dinner meeting on September 21st. Mr. Barnett described the development of his 48 oz. injection molding machine and showed a film on the machine in operation. The major inovations are a preplastizing chamber and a unique ram arrangement which gives a final boost to the charge. He also discussed the application of pin point gating and means for reducing mold costs.

The **CHICAGO SECTION** held a joint S.P.I.-S.P.E. Golf Outing at the Elmhurst Country Club on September 23rd. There were prizes for everyone. "Characteristics of Alkyd Molding Compounds" was the subject of H. E. Murray's talk at the October 12th meeting at the Builder's Club. Murray is assistant director of technical service for the Plaskon Division of L-O-F. The meeting, held jointly with SPI, had as an added feature sound movies of the Chicago Bears football game, with Red Grange as commentator.

The **SAINT LOUIS SECTION** held their first Fall meeting at the Melbourne Hotel on September 27. Mr. Ed Borro spoke on "Molds for Plastics." Al Werner brought an attendance prize from Chicago Molded Products Corp.

The **SOUTH TEXAS SECTION** met at the College Inn in Houston on October 19th to hear Mr. Howard S. Bunn speak on "Applications of Molded and Extruded Vinyl Resins and Polyethylene." Mr. Bunn is vice-president in charge of thermoplastic sales for Bakelite Corp.